

# USE OF COLOURED WRIST BANDS TO STRATIFY RISKS AND IMPROVE SAFETY DURING SUPERVISED EXERCISE SESSIONS

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## INTRODUCTION

Sports Medicine Programme conducts exercise intervention program for patients with various medical conditions. It is important that appropriate levels of exercise are prescribed based on the medical history and health status of individual patients. The aim of this study is to evaluate the use of colour coded risk stratification system, supported with Silicon Coloured Wrist Bands (SCWB), to identify the different risk profile of patients attending supervised exercise sessions and evaluate the compliance to prescribed exercise intensity.

## METHODOLOGY

Risk stratification was performed at the start of each exercise session and this was based on patient's individual medical history, and responses to questions relating to their health status. Examples of questions were "How are you feeling today?", "Have you been unwell, injured recently?". The risk stratification chart is shown in Figure 1 below. Patients were also required to wear a POLAR Team2 Heart Rate Monitor (HRM) to monitor the exercise intensity during the exercise sessions.

How are you feeling today?	
Feelings	Action
<ul style="list-style-type: none"> <li>- I am feeling GREAT!</li> <li>- I am ready for all exercises!</li> </ul>	Suitable for ALL exercises!
<ul style="list-style-type: none"> <li>- I have just recovered from a minor illness (e.g. Flu, cold, cough) or injury.</li> <li>- I am feeling some pain in my knees / ankles / back.</li> </ul>	<ul style="list-style-type: none"> <li>- Close supervision.</li> <li>- Appropriate modification of exercises (Type and intensity).</li> </ul>
<ul style="list-style-type: none"> <li>- I have a medical condition that does not allow me to do certain exercises.</li> </ul>	<ul style="list-style-type: none"> <li>- 1-1 supervision.</li> <li>- Special prescriptive considerations (e.g. Light intensity exercises).</li> </ul>
<ul style="list-style-type: none"> <li>- I am new to the group.</li> <li>- I need some assistance with the exercises.</li> </ul>	<ul style="list-style-type: none"> <li>- Close supervision.</li> <li>- Focus on teaching of proper exercise techniques.</li> </ul>

Figure 1. Risk stratification chart.

<b>GREEN</b>	All well with no significant medical history or recent illness. Suitable for all exercises.
<b>YELLOW</b>	Recent illness or injury. Suitable for most exercises at light-moderate intensity which is below 70% of their Heart Rate Max (HR <sub>max</sub> ). May require exercise modifications.
<b>RED</b>	Significant medical history that may increase risk for exercise complications. Require individual supervision and only light intensity exercises permitted.
<b>BLUE</b>	New to the program. Require individual supervision and / or assigned an exercise buddy. Focus on familiarisation to exercise techniques and intensity. Orientation needed.

## RESULTS

From the period of May to June 2015, a survey of utilisation on the SCWB and its effectiveness was conducted. A total of 55 visits were recorded and patients were given either yellow or green SCWB before their exercise session. The distribution of the SCWB are shown in Figure 2.

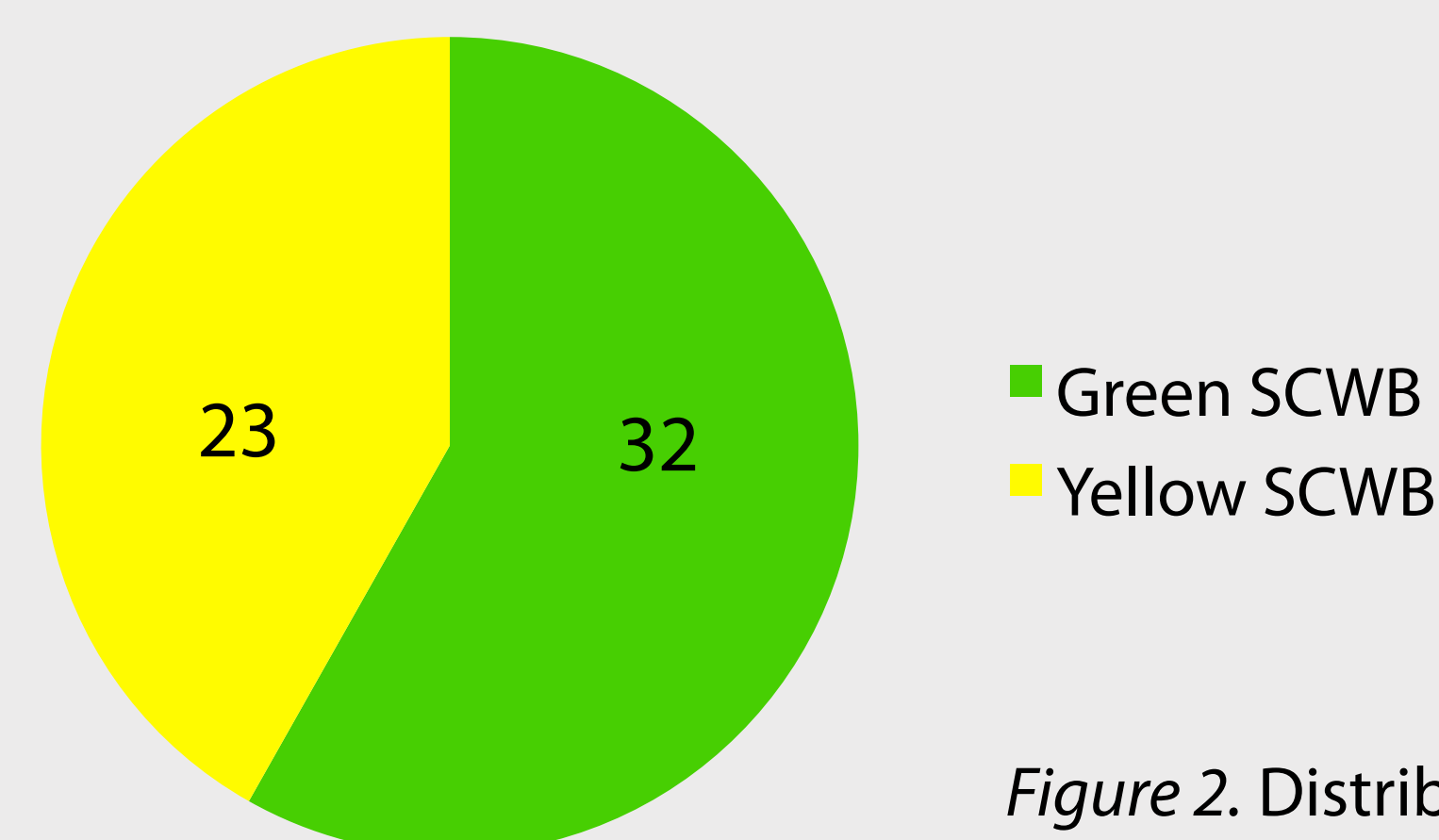


Figure 2. Distribution of Yellow and Green SCWB.

Patients that were issued yellow SCWB were required to perform their exercises below 70% of their HR<sub>max</sub>. 23 yellow SCWB were issued to patients and 15 of them were compliant as they were able to maintain the required exercise intensity. 4 patients were reported as non-compliant with an average of 73% HR<sub>max</sub>. The remaining 4 patients were not issued with a HRM as they have skin conditions that may be exacerbated by the HRM chest strap. They were excluded from the analysis. From this study, it was found that 78.9% of patients stratified to yellow SCWB were compliant.

Figure 3 shows the compliance rate of the yellow SCWB.

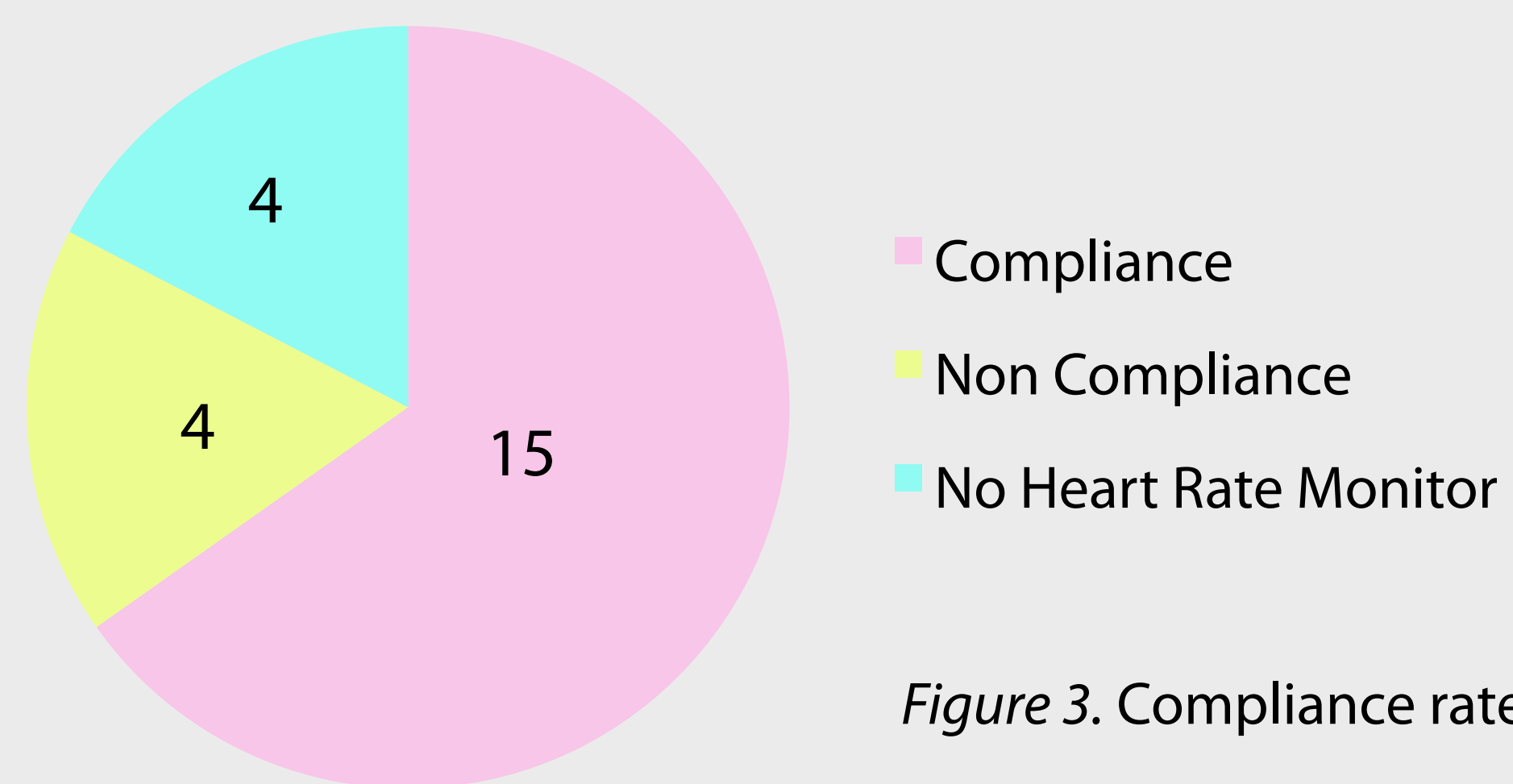


Figure 3. Compliance rates for yellow SCWB.

## CONCLUSION

This study showed that the SCWB risk stratification system is effective and can be used to identify health risk for patients attending exercise sessions. Majority of the patients understood the risk stratification system, and were compliant to their prescribed exercise intensity. Four patients were exercising above the recommended intensity of 75% HR<sub>max</sub>. However, for heart rate monitoring, there is usually an acceptable variation of between 10-15%. Therefore, the average heart rate of 73%HR<sub>max</sub> by the four patients can be considered to be within appropriate and safe exercise limits.

The SCWB is well-liked especially among the young patients, due to its bright colours and soft silicon material. It was also suitable for patients with different skin conditions.

Proper screening and risk stratification is important for enhancing exercise safety. The SCWB is a useful tool and can help exercise specialist stratify exercise risks and improve safety for patients attending clinical exercise interventions.

Photo courtesy of Sports Medicine Programme, KKH.

